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**EXHIBIT C**



LTC1929

## 2-Phase, High Efficiency, Synchronous Step-Down Switching Regulator

### FEATURES

- 2-Phase Single Output Controller
- **Reduces Required Input Capacitance and Power Supply Induced Noise**
- **Current Mode Control Ensures Current Sharing**
- Phase-Lockable Fixed Frequency: 150kHz to 300kHz
- **True Remote Sensing Differential Amplifier**
- OPTI-LOOPTM Compensation Improves Transient Response
- **$\pm 1\%$  Output Voltage Accuracy**
- Wide VIN Range: 4V to 36V Operation
- Very Low Dropout Operation: 99% Duty Cycle
- Adjustable Soft-Start Current Ramping
- Internal Current Foldback
- Short-Circuit Shutdown Timer with Defeat Option
- Overvoltage Soft-Latch Eliminates Nuisance Trips
- Available in 28-Lead SSOP Package

### APPLICATIONS

- Desktop Computers
- Internet/Network Servers
- Large Memory Arrays
- DC Power Distribution Systems

### DESCRIPTION

The LTC®1929 is a 2-phase, single output, synchronous step-down current mode switching regulator controller that drives N-channel external power MOSFET stages in a phase-lockable fixed frequency architecture. The 2-phase controller drives its two output stages out of phase at frequencies up to 300kHz to minimize the RMS ripple currents in both input and output capacitors. The 2-phase technique effectively multiplies the fundamental frequency by two, improving transient response while operating each channel at an optimum frequency for efficiency. Thermal design is also simplified. An internal differential amplifier provides true remote sensing of the regulated supply's positive and negative output terminals as required by high current applications. The RUN/SS pin provides soft-start and a defeatable, timed, latched short-circuit shutdown to shut down both channels. Internal foldback current limit provides protection for the external synchronous MOSFETs in the event of an output fault. OPTI-LOOP compensation allows the transient response to be optimized over a wide range of output capacitance and ESR values.

Please Click Here for [Reliability Data](#).

## TYPICAL APPLICATION

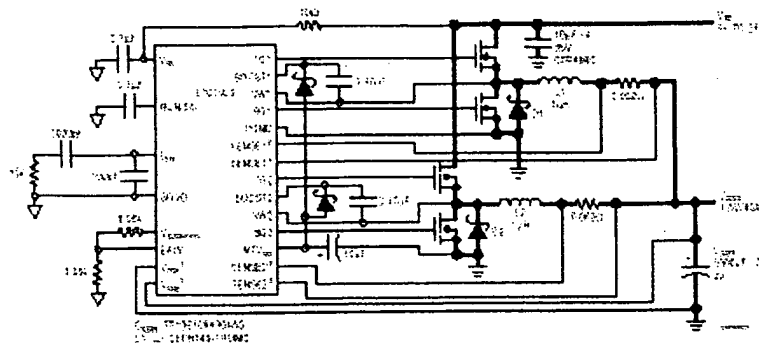


Figure 1. High Current 2-Phase Step-Down Converter

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